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A National Broadband Plan for Our Future	)	GN Docket No. 09-51

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Executive Summary

As a requirement of the American Recovery and Reinvestment Act, [1] the Federal Communications Commission is charged with crafting a National Broadband Plan by February 17, 2010. The Commission should begin at the end. To secure our economic future, ensure the public's safety, advance education and health care delivery, improve energy efficiency and to reinvigorate government and participatory democracy, the Commission should begin this endeavor to write a national broadband plan by envisioning a communications future that fulfills the promise of our historic commitment to universal, affordable wireline and wireless service. The plan should include an articulation of where we as a nation want to go and the intermediate steps for getting there. The plan should include a vision of a not-too-distant future, a future in which:

- Universal, affordable broadband facilitates job creation and economic growth;
- Broadband is a critical tool ensuring public safety and homeland security;
- Broadband delivers improved educational opportunity;
- Broadband improves health care while reducing costs;
- Broadband improves energy independence and efficiency while protecting the environment;
- Digital inclusion reinvigorates democracy and government;
- Broadband improves the lives of people with disabilities;
- Broadband unlocks cost-savings for consumers;

[1] Pub. L. No. 111-5, 123 Stat. 115 (2009) (Recover Act).

- Smart broadband policy creates a “Virtuous Circle;”
- Affordable, high-speed fiber and mobile wireless reach everywhere;
- The Internet is open and free; and
- Consumer protection is ensured in the Digital Age.

The National Broadband Plan should be a coherent road map of policies and goals that complement and accelerate efforts in the marketplace to achieve universal adoption of affordable high-speed Internet connections. Most calls for the deployment of universal, affordable, and robust broadband focus on proposals to increase the supply of broadband. Benton recommends several initiatives that the nation should undertake to stimulate broadband supply. But while stimulating broadband supply is necessary to achieving the goal of universal, affordable, and robust broadband, it is not sufficient. The National Broadband Plan must also promote initiatives to stimulate broadband demand.

No doubt, competition must play a role and consumers will benefit when it spurs innovation, increases investment, spurs deployment, lowers costs, and increases choices. But market forces alone will not quickly close the broadband gap in America. There is a role for government and the Commission’s Universal Service Fund programs should be updated and reformed to address the broadband gap.

The National Broadband Plan must be consistent with the nation’s historic commitment to universal, affordable services which are indispensable in providing the same opportunities for rural and low income Americans to participate in the nation’s economy.

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Introduction

As a requirement of the American Recovery and Reinvestment Act,[2] the Federal Communications Commission is charged with crafting a National Broadband Plan by February 17, 2010. The Recovery Act specifies that the Commission's plan must include an analysis of several specific elements of broadband deployment.

- First, the Commission must analyze the most effective and efficient mechanisms for ensuring broadband access by all people of the United States;
- Second, the Commission must include a detailed strategy for achieving affordability of such service and maximum utilization of broadband infrastructure and service by the public;
- Third, the Commission must include an evaluation of the status of deployment of broadband service, including progress of projects supported by the grants made pursuant to the Recovery Act; and
- Finally, the Commission must include a plan for use of broadband infrastructure and services in advancing a broad array of public interest goals, including consumer welfare, civic participation, public safety and homeland security, community development, health care delivery, energy independence and efficiency, education, worker training, private sector investment, entrepreneurial activity, job creation and economic growth, and other national purposes.

[2] American Recovery and Reinvestment Act of 2009, Pub. L. No. 111-5, 123 Stat. 115 (2009) (Recovery Act). The Recovery Act states that "[n]ot later than 1 year after the date of enactment of this section, the Commission shall submit to the Committee on Energy and Commerce of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate, a report containing a national broadband plan." The Recovery Act was signed into law on February 17, 2009.

Since January 2007, the Benton Foundation[3] has been an advocate for federal policymakers to craft a national broadband strategy with set benchmarks, deployment timetables, a commitment to demand drivers, and measurable thresholds.[4] Benton called for protecting our traditional values in the 21st century – providing opportunities for all, including people with disabilities, to participate in the digital economy, using information age tools to ensure public safety, and respecting the privacy of all Americans.

Over the course of 2008, Benton and Jonathan Rintels of the Center for Creative Voices in Media[5] fleshed-out what a broadband strategy could look like – writing An Action Plan for America,[6] a blueprint for connecting the nation to broadband in order to unleash billions of dollars in economic development, create over a million jobs, enhance America's global competitiveness, deliver superior health care and education, reduce energy consumption and environmental degradation, improve public safety and homeland security, and reinvigorate democracy. CCVM has also contributed valuable research on how all Americans will benefit from fast, reliable, affordable, universal and open broadband access to the Internet.[7]

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[3] The mission of the Benton Foundation ("Benton") is to articulate a public interest vision for the digital age and to demonstrate the value of communications for solving social problems. Benton is a longtime supporter of research on universal service and the potential of high-speed Internet connections for improving Americans' lives.

[4] See letter to President Bush, January 2, 2007 (http://www.benton.org/benton_files/bentonfoundationbroadband.pdf)

[5] The Center for Creative Voices in Media ("CCVM") is a nonprofit 501(c)(3) organization dedicated to preserving in America's media the original, independent, and diverse creative voices that enrich our nation's culture and safeguard its democracy.

[6] Rintels, Jonathan. An Action Plan for America: Using Technology and Innovation to Address our Nation's Critical Challenges. Benton Foundation. December 2008. (Attachment 1)

[7] Rintels, Jonathan. The Case For Universal Broadband in America: Now! Center for Creative Voices in Media. October 2007. (Attachment 2)

I. Envisioning America's Communications Future

The Commission should begin at the end. To secure our economic future, ensure the public's safety, advance education and health care delivery, improve energy efficiency and to reinvigorate government and participatory democracy, the Commission should begin this endeavor to write a national broadband plan by envisioning a communications future that fulfills the promise of our historic commitment to universal, affordable wireline and wireless service. Broadband is vital to our national success.

The plan should include an articulation of where we as a nation want to go and the intermediate steps for getting there. The plan should include a vision of a not-too-distant future. In this not-too-distant future, Americans should be blissfully unaware of slow, dial-up Internet connections. In the not-too-distant future, high-speed Internet connections provide people and devices a constant, unbroken connection to the Internet and eachother. It's not only about checking email or surfing the Web; it is an indispensable communication technology for learning, working, and communicating.

Broadband, if the term is even used when it is truly ubiquitous, offers the most affordable conduit for making phone calls to anywhere in the world, delivering the video and audio programming we want where and when we want it, and connects us to friends, family,

and co-workers—even when we leave the home or office. All of our basic communications—be they text, audio, or video—are over broadband connections. In the not-too-distant future (if not already true today), lack of access to this tool doesn't only mean being disconnected from the Internet. It means being disconnected from the economy, from society, and from the benefits of the Digital Age.

As Congress and the Commission[8] have recognized, the availability of the Internet has already had a profound impact on American life. This network of networks has fundamentally changed the way we communicate. It has increased the speed of communication, the range of communicating devices and the variety of platforms over which we can send and receive information.[9] As Congress has noted, "[t]he rapidly developing array of Internet . . . services available to individual Americans represent an extraordinary advance in the availability of educational and informational resources to our citizens."[10] The Internet represents "a forum for a true diversity of political discourse, unique opportunities for cultural development, and myriad avenues for intellectual activity."[11] In addition, the Internet plays an important role in the economy, as an engine for productivity growth and cost savings. The Internet's profound impact accelerates daily.[12]

[8] See FCC 05-151 adopted August 5, 2005.
[9] *IP-Enabled Services NPRM*, 19 FCC Rcd at 4869-70, para. 8.
[10] 47 U.S.C. § 230(a)(1).
[11] 47 U.S.C. § 230(a)(3).
[12] For more on the evolution to "Everything Over IP," see Time for Change: Transforming Funding for Broadband Universal Service by Richard D. Taylor, Pennsylvania State University (Attachment 3)

The National Broadband Plan should promote policies to stimulate both demand for, and supply of, robust and affordable broadband, including:

- Directing the heads of all federal departments and agencies to take specific action to:
    - Ensure that affordable, robust broadband is available to all Americans;
    - Include the use of broadband in meeting the mission of their agencies;
    - Make the implementation of the National Broadband Plan one of their highest priorities, and prepare action plans on initiatives their agencies are undertaking to help achieve the goals of the National Broadband Plan; and
    - Report annually to the President on the progress of these initiatives;
- Opening underused spectrum currently reserved for both public and private use for a new generation of wireless devices that will provide robust broadband service over great distances and rough terrain without interference to existing licensed uses;
- Supporting state and municipal broadband initiatives to encourage the build-out and support of next-generation broadband networks;[13]

[13] The National Broadband Plan should specifically promote the elimination of state and local impediments to state-, municipal-, and community-funded deployment of broadband.

- Increasing deployment of broadband to underserved communities and populations by:
    - Modernizing the federal Universal Service Fund to support affordable, universal, landline and wireless broadband;
    - Requiring, as a condition for receipt of federal funding, that public housing and other public buildings have robust broadband access available to all residents and tenants; and
    - Initiating and expanding programs to extend broadband to persons with disabilities, seniors, minorities, Native Americans, and other populations that are too often on the wrong side of the digital divide.
- Adopting policies that stimulate private sector investment in robust broadband including:
    - Accelerated depreciation of broadband equipment and tax credits for significant upgrades to existing network capacity;
    - Issuing federal "Broadband Bonds" to finance, in partnership with private entities, deployment in un- and under-served areas, as recommended in California by that state's Broadband Task Force;
    - Directing the General Services Administration's Public Buildings Service to assess anchor tenancy opportunities as a part of every agency's process to negotiate or renegotiate a telecommunications lease;[14]

[14] Anchor tenancy can act as a catalyst, drawing providers to locations that have little or no access to broadband. Assess whether anchor tenancy could draw private providers to a surrounding unserved community or upgrade existing network infrastructure, if no other plans exist to do so.

- Directing the General Services Administration's Public Buildings Service to offer, at cost, in un- or under-served areas, small spaces on federally-owned properties on which collocation facilities can be constructed;[15]
- Mandating open access to the Internet for all users, service providers, content providers, and application providers to the maximum extent possible, while recognizing that network operators must have the right to manage their networks responsibly, pursuant to clear and workable guidelines and standards; and
- Eliminating issues and concerns that deter citizens from accessing the Internet by promoting online safety, privacy, and network security, and strongly enforcing laws against online criminals, spammers, promoters of frauds, and other illegal actors.

A. Universal, affordable broadband facilitates job creation and economic growth

In the not-too-distant future, the U.S. has unleashed pent up economic development. The latest productivity-improving technologies have raised standards of living. Ubiquitously available affordable broadband has unleashed: 1) an estimated $500 billion in economic growth, 2) created more than 1.2 million high-wage jobs, 3) restored America's global competitiveness, 4) boosted business productivity, and 5) allowed small businesses to reach global markets. Rural communities around the country successfully compete for high-paying "knowledge work" jobs that might otherwise be exported abroad. The payroll growth rate is up.

[15] This will both reduce one of the cost barriers and create "carrier neutral" facilities into which companies can connect with regional and other networks that connect to major Internet connection points in metropolitan areas.

In the not-so-distant future, America thinks in terms of fostering training, educational programs, and management systems that empower technology workers, build from its uniquely entrepreneurial culture, reinforce leadership in service industries with scientific discipline and data, and create unquestioned superiority in cutting-edge fields like nanotechnology, biotechnology, cognitive science, and information science and engineering. We focus on creating a workforce able and empowered to act on insight and experience, and an innovation system that is continually poised to deploy great ideas. We find that the big winners in an increasingly fierce global reach for leadership are not those who simply make commodities faster or cheaper than the competition, ultimately leading to a downward-spiraling competition for low wages and lower margins. Rather, the winners are those who develop talent, techniques, and tools so advanced that reaching a dimension of innovation beyond competition is ensured.

A well-educated population is essential to retaining America's competitiveness in the global economy. The ever-increasing knowledge and skill demands of the 21st century require that secondary school preparation and requirements be better aligned with the knowledge and skills needed to succeed in postsecondary education and the workforce.

To promote significant and sustained economic development and job creation, and enhance America's economic and technological competitiveness versus other nations, the National Broadband Plan must recommend swift and bold action that will once again

make the United States a world leader in advanced telecommunications infrastructure. The plan should recommend that Congress:

- Fully fund the America COMPETES Act including the National Science Foundation grant program for institutions of higher education that award associate degrees to recruit and train individuals from the fields of science, technology, engineering, and math to mentor female, minority, and disabled students in order to assist such students in identifying, qualifying for, and entering higher-paying technical jobs in those fields and
- Set a national skills agenda to compete globally and to ensure a rising standard of living for Americans.

B. Broadband is a critical tool ensuring public safety and homeland security

In the not-too-distant future, policymakers have learned the lessons of past tragedies[16] and realize that ubiquitous broadband is a national security imperative.[17] We've built integrated and interoperable emergency response systems by planning and providing: 1) access to broadband for emergency organizations, 2) interconnected networks to serve

[16] The Internet's inherent network efficiencies were on display on September 11th, prompting the National Academies of Science to find afterwards that the Internet held up better than other communications technologies on that fateful day. Among the thousands of casualties on 9/11 was our outdated communications infrastructure. According to the National Academies, on 9/11 95% of cell phone calls at 11 a.m. failed to get through; the central office for the phone system cut off 300,000 landline phones; television stations were knocked off the air; and police and Fire Department radios failed. In fact, only 2% of Internet addresses remained off-line for an extended period. 9/11 demonstrated the Internet's overall resilience to attacks through its flexibility and adaptability. But 5 years after 9/11, America has not done enough to advance the broadband Internet technologies that can help avoid future communications failures.

[17] The Internet, designed by the Defense Department to withstand a nuclear attack, has some inherent advantages over traditional communications systems in an emergency. The transformation to a decentralized broadband network with multiple paths between any two points and the Internet's packet of communication protocol enhanced network capabilities, eliminates many single points of failure, and enables the network to automatically and efficiently work around failures.

this balkanized field, and 3) most importantly, transmitting the right data and applications over these networks.

The transition, from the emergency networks circa 2009, has saved lives and money. Universal, affordable, and robust broadband brings many benefits in the event of a public safety or homeland security emergency. In the event of a major 9/11-type attack on Washington, or a flu pandemic or other emergency, employees are still be able to communicate via broadband-based applications even when offices are inaccessible. Federal workers, using broadband-enabled phones, work from home or other broadband-enabled locations, improving continuity of government.

Modern broadband communications networks and applications have radically improved the manner in which emergency information is shared by health officials. Broadband services -- married with wireless technology -- quickly, reliably, and securely transmit bandwidth-intensive information such as video, pictures, and graphics to first responders in the field. In the not-too-distant future, our 21st-century telecommunications infrastructure is scaled to provide for our national defense: it is universal, robust, interoperable, open, resilient, and redundant.

Broadband and broadband-enabled applications tie together local community firefighters, police officers, ambulance crews, and other emergency workers in a single wireless communications network. In the future, police officers engaged in high-speed chases get real-time footage from helicopters. Bomb squads inspect dangerous sites remotely. The

smallest and most rural public safety agencies benefit the most from broadband access to the Internet because it gives them access to the best information technology applications at a cost far more affordable than those available in the not-too-distant past.

To enhance public safety and protect homeland security, the National Broadband Plan should recommend that Congress and the Administration:

- Undertake a national effort to build a national 21st century telecommunications system that will provide for public safety and homeland security similar to the effort undertaken 50 years ago to build our National Interstate and Defense Highway system. This effort should be guided by these overarching principles:
    - First responders should have a single, nationwide, robust broadband communications system with technology based on open standards and redundant and resilient connections;
    - All U.S. citizens should have access to emergency services and agencies using any device or mode commonly used in public communications;
    - The network should provide emergency responders and citizens access to the information they need, when, where, and how they need it.

      Specifically, this effort should include:
        - Ensuring that local, state, federal, and tribal statutes, regulations, and overall policies promote, rather than delay, the creation of this system;

    - Directing the Department of Homeland Security to mandate interoperable, broadband-based systems in all communications-related grants;[18] and
    - Evaluating and, if effective, continuing the Public Safety Interoperable Communications Grant Program[19] at the National Telecommunications and Information Administration;
- Convene a new blue-ribbon panel on emergency communications and information technology, such as that assembled by the U.S. National Science Foundation in 2003, to study the emergency telecommunications and IT systems and networks now operating across the nation. The panel should recommend to the Administration and Congress ways that those networks could be upgraded and supplemented to provide for the nation's public safety and the national defense in the 21st century;[20]
- Adopt the ComCARE E-Safety Program to enhance homeland security by helping bring 21st-century capabilities to emergency response, deploying integrated, interoperable, and interconnected wireline and wireless systems and applications;[21]
- Restore funding for the Tribal Rural Law Enforcement Internet Project;

[18] See Department of Homeland Security Grant Program Overview FY 2008, www.dhs.gov/xnews/releases/pr_1216997045027.shtm.
[19] The Public Safety Interoperable Communications Grant Program awarded $968,385,000 in fiscal year 2007 to fund interoperable communications projects in the 56 states and territories. The awards will help state and local first responders improve public safety communications during a natural or manmade disaster.
[20] Id.
[21] ComCARE (Communications for Coordinated Assistance and Response to Emergencies) is a national nonprofit coalition of over 100 members of the emergency response community dedicated to advancing emergency response, www.comcare.org/ESafetyVision.html.

- Direct FEMA to create a Disaster Relief Mobile Services Unit to provide advanced telecommunications services to areas where the existing infrastructure has been devastated by disaster;
- Appoint a national cyber security advisor to coordinate policy to secure information and information networks;
- Adopt the recommendations of the Joint Advisory Committee on Communications Capabilities of Emergency Medical and Public Health Care Facilities to overhaul and update the communications systems of EMS, 9-1-1, and public health facilities, based on these principles:
    - Encourage interoperable broadband networks;
    - Improve interoperability through better interagency coordination;
    - Enable consistent efforts through use of common standards and federal grant guidance coordination;
    - Advance capabilities through better network integration; and
    - Ensure that first responders, health care personnel, and patients have ubiquitous access to broadband services and applications by fostering a regulatory environment in which private-sector companies build robust broadband networks and by providing targeted funding.[22]

[22] Joint Advisory Committee on Communications Capabilities of Emergency Medical and Public Health Care Facilities, Report to Congress, February 4, 2008, http://energycommerce.house.gov/Press_110/JAC.Report_FINAL%20Jan.3.2008.pdf (emphasis in original).

C. Broadband delivers improved educational opportunity

In the not-too-distant future, every American has the ability to compete and win in the 21st century economy with broadband. Schools and libraries offer ubiquitous computing and expanded access to the Internet. Educational content and software that incorporates the vast range of technologies are easily available with digitized content of America's universities, museums, libraries, and other public institutions. Affordable broadband access offers everyone the ability to maximize their personal potential without regard to geography or economic circumstance.

With access to these modern technologies researchers find:

- Improved student achievement, attendance, and graduation rates, and decreased dropout rates;
- Gains on high-stakes tests that enable schools to meet AYP (Adequate Yearly Performance) and performance benchmarks under No Child Left Behind;
- Heightened school efficiency, productivity, and decision making;
- Advances in teachers meeting requirements;
- Improved student learning skills;
- Assistance in meeting the needs of all students, including those with special needs;
- Promotion of equity and access;
- Improved workforce skills;

- Children in the most isolated inner-city neighborhood or rural region access the same universe of knowledge as a child in the most affluent suburb -- transforming the way teachers teach and students learn;
- Parents keep on top of their children's homework and be in contact with their teachers;
- Children take language or piano lessons from experts around the globe with the help of voice and video software;
- Students research projects across the whole curriculum;
- Teachers locate relevant educational material, use online resources for their lesson planning, and incorporate media rich graphics and video content into their teaching;
- Teachers report improvements in achievement, and levels of confidence and self esteem, particularly as students improve their problem solving strategies;
- Universities post course videos online and transform the way teachers teach and students learn; and
- Students complete university degrees online.

The National Broadband Plan should recommend that Congress and the Administration infuse broadband and technology throughout America's education system and promote initiatives to advance online learning and digital excellence training:

- Expand and reform the E-Rate program.[23] The E-Rate program should ultimately provide free broadband to all schools and libraries, as well as sufficient hardware and software for students to use it. Intermediate steps include lifting the E-Rate funding cap while simplifying its paperwork burden and bureaucratic complexity. E-Rate recipients should be allowed and encouraged to use E-Rate funds to create wireless broadband canopies that bring the school or library's broadband to the surrounding community. The program should support Internet broadband speeds of at least 10 Mbps per 1,000 students/staff, as recommended by the State Educational Technology Directors Association.[24]
- Create and fund the Digital Opportunity Investment Trust and expand the Enhancing Education Through Technology (EETT) program. The Digital Opportunity Investment Trust will advance the high priority of bringing technology into the educational system, emphasizing the creation of educational content and software that incorporates the vast range of technologies available. It will also address the critical need to digitize and bring online the content of America's universities, museums, libraries, and other public institutions.[25] The new Administration should also increase funding for the EETT program, designed to improve student achievement and boost students' digital literacy through the use of technology in schools.

[23] The E-Rate program has been extremely effective in its mission of bringing the Internet to America's schools and libraries. But too often, that Internet access is so slow as to be obsolete and may be available on only one computer per school.
[24] "High-Speed Broadband Access for All Kids: Breaking Through the Barriers," State Educational Technology Directors Association, June 2008, www.setda.org/web/guest/class2020actionplan.
[25] Eamon Kelly, "The Digital Opportunity Investment Trust and America's Global Leadership," New America Foundation, February 2005, 3, www.digitalpromise.org/newsite/Resources/Research/DOIT-Kelly.pdf.

- Provide one laptop per child and support ubiquitous computing. The new Administration should provide federal funding to school districts that implement a one-to-one laptop program for students in grades 6 through 12 and provide funding for teachers, students, and parents who receive training in technology-rich educational services and applications.[26] It should also provide tax incentives and other support that encourage America's businesses to donate their old computers to economically disadvantaged families.
- Support state, municipal, and school district efforts to bring robust broadband to schools. One of the world's largest installations of wireless local area networks in production today has been constructed by the School District of Philadelphia, the eighth largest school district in the United States. It now provides wireless Internet access at every school in the district.[27] As Chairman Michael Copps has suggested,[28] the federal government should facilitate the expansion of these broadband networks beyond the schools to the nearby communities, as was done in Livermore Valley, California.[29]
- Appropriate funding for the National Center for Research in Advanced Information and Digital Technologies. The National Center will support a comprehensive research and development program to explore ways advanced computer and communication technologies can improve all levels of learning and

[26] "A National Blueprint for Technology and the Public Good," One Economy Corp., n.d., www.one-economy.com/sites/all/files/OE_Policy_BluePrint.pdf.
[27] Avaya, "The School District of Philadelphia, Meru Networks and Avaya Provide Wireless Technology at 268 Schools to Transform the Teaching and Learning Experience," November 27, 2007 http://www.avaya.com/gcm/master-usa/en-us/corporate/pressroom/pressreleases/2007/pr-071127.htm
[28] Michael J. Copps, Remarks at the New America Foundation, Washington D.C., June 23, 2008.
[29] "School District's Wireless Network Delivers Emergency Response System for Community," Mobile Enterprise, January 29, 2008, http://www.mobileenterprisemag.com/ME2/dirmod.asp?sid=&nm=&type=news&mod=News&mid=9A02E3B96F2A415ABC72CB5F516B4C10&tier=3&nid=401D1E5D36E742E5BD6DE822561E0F6B

"make learning more compelling, more personal, and more productive in our nation's schools."[30]

- Adopt action principles and goals formulated by top educators for all federal education programs.
    - Technology should be promoted to the greatest extent possible in every federal education program and initiative.
    - Standards for educational uses of technology that facilitate school improvement should be required, such as the National Educational Technology Standards developed by the International Society of Technology in Education.
    - Proficiency in 21st-century skills should be emphasized in education policies, as well as professional development programs that foster 21st-century teaching and learning.[31]
- Support categorical funding for online learning initiatives and digital excellence initiatives.

D. Broadband improves health care while reducing costs

In the not-too-distant future, Americans are healthier and live longer lives while we save billions annually on health care costs. Citizens as well as health professionals are able to improve the quality of care without increasing costs or increasing the ranks of the

[30] "The National Center for Research in Advanced Information and Digital Technologies," Fact Sheet, Federation of American Scientists, August 18, 2008, www.fas.org/press/news/2008/aug_nationalcenter.html.
[31] "Maximizing the Impact: The Pivotal Role of Technology in a 21st Century Education System," State Education Technology Directors Assoc., International Society for Technology in Education, and the Partnership for 21st Century Skills, November 2007, www.setda.org/web/guest/maximizingimpactreport.

uninsured. “Telehealth” and digital health information technology (HIT) are universally available. Every American has a digital health record. Medical researchers produce information that improves the quality of care. Seniors take advantage of new remote health monitoring technologies and independent living. Policymakers inform consumers on how to use their buying power to produce a more responsive and effective health care system. Consumers use information to assume more direct responsibility for their own health. Doctors in urban areas diagnose patients in rural areas and consult with experts from around the globe.

Using broadband-enabled healthcare services and applications, caregivers:

- Access educational information and applications to attack the environmental root causes and promote early intervention through online nutritional planning, healthy menus, calorie counters, and other proactive healthy-living tools at any time of the day or night;
- Video conference with online dieticians or other professionals, and have recurring physical checkups conducted remotely, thereby avoiding inconvenient and costly trips to clinics or doctors' offices for evaluation and treatment of their chronic condition;
- Participate in online exercise regimens individually tailored to their particular cases at times when they are not in school or at work;
- Shop at a "virtual" online grocery store that keeps track of calories and nutritional needs, then creates a healthy shopping list and prints it out for the patient to take to the real store; and

- Meet with mental health professionals and/or other obese youths in online counseling, support, and therapy sessions.

The widespread adoption of HIT:

- Empowers patients to better monitor their own care and lifestyle habits, and to interact with health providers.
- Improves the management - and thus lowers the cost—of chronic illnesses, since early and consistent treatment delays the onset of many symptoms.
- Enables people who live in under-served communities to gain access to treatment that they otherwise might not receive, given the lack of adequate numbers of health professionals and facilities in rural areas and the inner city.
- Engages children of aging parents (who may have to travel long distances to help care for their elders) to remotely participate in decision making and monitoring, using real-time video, voice, images, and data exchanged and conferenced among patients, care providers, and families.
- Introduces security and privacy protocols not possible under the current paper-based system.

The National Broadband Plan should recommend that Congress and the Administration employ broadband to provide better quality health care and quality of life, at a significantly reduced cost.

- Direct the Secretary of Health and Human Services to:

- Define and catalog the types of entities that govern, oversee, operate, and/or create policy for the electronic exchange of health information and produce recommendations regarding the appropriate level of consumer participation and requirements for transparency that should apply to them;
- Require institutions and providers to begin sharing health information electronically;
- Set standards for electronic exchange of health information; these standards should focus on:
    - Quality improvement; Care management; Billing; Decision support; Performance data reporting; and Research and population health initiatives, including disparities reduction efforts;
- Set standards for federal health information security and confidentiality; standards that should be guided by the following consumer-control principles:
    - Consumers should have easy access to review, add notations, and suggest corrections to existing information in their own records;
    - Consumers should be able to limit which parts of their health information can be shared with which providers;
    - Consumers should be able to limit how their personally identifiable medical information is used outside of care delivery (e.g., for research);

        - Consumers should be able to easily designate others as proxies to act on their behalf (e.g., family member, caregiver, or guardian); and
        - Consumers deserve an effective process and infrastructure for monitoring and certifying compliance with these common principles among organizations, initiatives, and technologies.
    - Encourage and facilitate the adoption of state reciprocity agreements for practitioner licensure to expedite the provision across state lines of telehealth services;
    - Expand the list of Medicare telehealth-originating sites to include mental health facilities;
    - Include as a home health visit for Medicare purposes telehealth services furnished to an individual by a home health agency;
    - Establish a demonstration project to evaluate the impact and benefits of covering remote patient management services for certain chronic health conditions;
    - Acting through the Director of the Office for the Advancement of Telehealth of the Health Resources and Services Administration, make grants to expand access via telehealth to health care services for individuals in medically underserved rural, frontier, and urban areas;
    - Work with health plans, employers, HIT vendors and others to create and maintain a centralized resource center of grants, loans, insurance savings

opportunities, incentive programs, and other financing options for HIT for providers;

- Establish a consistent methodology for measuring telehealth and health information technology adoption and effective use, and analyzing and reporting data; and
- Allow for electronic prescribing of controlled substances, with appropriate safeguards.

- Modernize Medicare to facilitate telehealth service:
  - Remove Medicare's current geographic restrictions on the provision of telehealth services;
  - Expand the types of facilities authorized to participate in the Medicare telehealth program; and
  - Allow for the provision of coverage of remote patient management services, including home health remote patient management services, for certain chronic health conditions;
- Reauthorize telehealth network and telehealth resource centers grant programs;
- Allow the Centers for Medicare & Medicaid Services to make federally qualified health centers eligible to participate in demonstration projects related to health records and heath information technology; and
- Allow the Internal Revenue Code to treat qualified health care information technology as a depreciable asset.

E. Broadband improves energy independence and efficiency while protecting the environment

In the not-too-distant future, increased broadband access and use have reduced energy consumption and carbon dioxide gas emissions. Many people telecommute one or more days per week. Our nationwide electrical system is modernized with innovative "Smart Grid" technology.

The impact of changes stemming from the delivery of broadband has been an incremental reduction of greenhouse gas emissions:

- Business-to-business and business-to-consumer e-commerce have reduced greenhouse gases by hundreds of million U.S. tons;
- Telecommuting has reduced greenhouse gas emissions by hundreds of million tons due to less driving, reduced office construction, and energy saved by businesses;
- Teleconferencing has reduced greenhouse emissions -- 10 percent of airline travel has been replaced by teleconferencing;
- Reduction in first-class mail, plastics saved from downloading music/video, and office paper from emails and electronic documents has reduced emissions; and
- Shifting newspaper subscriptions from physical to online media alone has saved millions of tons of carbon dioxide and other greenhouse gas emissions.

In the not-too-distant future, our 21st-century smart grid is:

- Energy efficient;

- "Self-healing;"
- More secure from physical and cyber threats;
- Interconnected, supporting widespread use of distributed generation, allowing customers to interconnect fuel cells, renewable generation such as wind, and other distributed generation on a simple "plug and play" basis;
- Enabling consumers to better control the appliances and equipment in their homes and businesses;
- Interconnect with energy management systems in smart buildings to enable customers to manage their energy use and reduce their energy costs; and
- Achieving greater throughput, thus lowering power costs.

The National Broadband Plan should recommend that Congress and the Administration use broadband technologies to meaningfully reduce energy consumption and improve environmental quality:

- Create a special government Energy, Environment, and Technology working group, under the leadership of the Chief Technology Officer Aneesh Chopra, to break down the bureaucratic silos separating energy, environmental quality, and information technology regulators and experts, and bring them together to realize the promise that broadband and information technology can bring to our nation's challenges with energy scarcity and environmental degradation.
- Direct the U.S. General Services Administration, the U.S. Office of Personnel Management, and the Chief Technology Officer Aneesh Chopra to:

    - Provide recommendations and assistance to all agency heads on ways to maximize voluntary telework without diminishing employee performance or agency operations, as well as ways to educate federal workers about the personal and social benefits of telework, including reduced energy usage, a healthier environment, and improved employee morale;
    - Establish and implement telework "best practices" for federal employees that will also serve as a model for adoption by state and local governments and the private sector;
    - Prescribe, in coordination with the Office of Management and Budget and the National Institute of Standards and Technology, regulations to ensure the adequacy of information and security protections for information and information systems used in, or otherwise affected by, teleworking; and
    - Maintain a central, publicly available telework website to be jointly controlled and funded by the General Services Administration and the Office of Personnel Management to inform federal employees of regulations, best practices, case studies, and other information relating to telework;
- Direct each federal agency to appoint a Telework Managing Officer who will:
    - Advise the agency head and Chief Human Capital Officer on telework; and
    - Educate supervisors, managers, and employees about teleworking;
- Direct the Department of Energy to report on progress made on achieving the national policy goal of a nationwide Smart Grid and recommend additional steps

necessary to reach the goal, such as adoption of a Smart Grid investment tax credit, demand reduction tax credit, accelerated depreciation, or other steps;[32] and

- Use the federal government's purchasing power in the electricity market to accelerate the adoption of Smart Grid technology and increase the availability of electricity from renewable energy sources, as called for by the Energy Policy Act of 2005.

F. Digital Inclusion Reinvigorates Democracy and Government

In the not-too-distant future, building out broadband to every American premise is coupled with initiatives to eliminate the digital divide through a program of "digital inclusion" - which encompasses access to broadband for all Americans and the skills and tools required to effectively use it. The efforts have fostered increased transparency and empower greater participation by citizens, while at the same time implementing more efficient "e-government" practices to generate cost savings in the billions of dollars. We've transformed and reenergized the federal government, connected policymakers to citizens, generated substantial cost savings, and reinvigorated our democracy.

Governments now make more data available in accessible formats, easily searched. By creating a simple, reliable and publicly accessible infrastructure that 'exposes' the underlying data, the government has empowered the private sector, whether commercial or nonprofit, to present, organize, and manipulate that government data for citizens in a multitude of ways. Government data-inspired wikis, blogs, forums, comment pages, mashups, and other innovations are now taken for granted by citizens. Not-for-profit and

[32] See the Energy Independence and Security Act (EISA) of 2007

commercial websites featuring easily accessible databases of federal contracts, audit disputes, competitive bidding, criminal or civil violations, earmarks, lobbyist meetings, and other government data shine an important light on decision making and help level the playing field for ordinary citizens.

Public agency meetings are streamed online, providing an opportunity for direct citizen input, and then are archived for future public access. "Town-hall" meetings with public officials are held frequently, since they no longer need to take place in a physical town hall, but can be held virtually online where citizens utilizing broadband can easily participate. Pending legislation and regulations are easily searchable and accessible online with the public empowered to comment.

The National Broadband Plan must promote digital inclusion of all citizens, and an efficient, open, and user-friendly e-government interface that enables them to participate fully and knowledgeably in government decision making. The Plan should recommend that Congress and the Administration:

- Provide tax incentives for closing the Digital Divide:
    - Tax incentives for Americans who donate their old computers to economically disadvantaged families;
    - Tax credits or subsidies for free or low-cost broadband Internet access for low-income households; and
    - Tax incentives to businesses for digital training for their employees;

- Address digital literacy:
    - Require digital literacy training in all federal education and worker retraining programs; and
    - Support state and local digital literacy programs, and programs that aid access to the Internet for persons with disabilities;
- Mandate that all federal housing be wired for broadband;
- Establish a National Youth Tech Corps to identify talented young people in technology and train them for community service projects in technology instruction and digital inclusion;
- Support the online "Public Internet Channel," now in beta at www.pic.tv, to serve as a "one-stop shop" for citizens seeking information and assistance in the areas of jobs and training, health, education, civic participation, and emergency preparedness;
- Promote e-government programs that reduce costs and empower citizens to interact with their government online; and
- Bring more government information online in open formats that enable the private sector to present it to citizens in innovative and effective ways, empowering greater citizen involvement in policymaking.[33]

G. Broadband improves the lives of people with disabilities

In the not-too-distant future, affordable broadband is delivering on its promise for the 54 million Americans with disabilities -- able to provide breakthrough new benefits not

[33] Using web 2.0 tools to create more transparency and make government data equally accessible to all, citizens will be able to track federal grants, contracts, earmarks, and the lobbyist contacts of government officials using websites, wikis, blogs, social networking, and other tools.

possible on the 20th century phone network.[34] As all Americans increasingly depended on e-mail and the Internet to work and communicate, it became even more important to ensure that people with disabilities were not left out of the digital revolution. Broadband-enabled technology, we found:

- is simply a more inclusive technology than the universal service-supported voice telephone network;
- gives Americans with disabilities the opportunity to improve personal communication and leave inaccessible voice telephony behind; and
- is not just something nice to have for people with disabilities, it is a critical communications link and equalizer with the rest of the population.

The National Broadband Plan should establish new safeguards for disability access to ensure that people with disabilities are not left behind as technology changes and the United States migrates to the next generation of Internet-based and digital communication technologies. The Plan should recommend that Congress and the Administration:

- Extend federal law that currently requires hearing aid compatibility on newly manufactured and imported telephones, to comparable customer premises equipment used to provide IP-enabled communication service to ensure that people with hearing loss have access to telephone devices used with advanced

[34] For more on the importance of broadband for people with disabilities see Universal Service and the Disability Community: The Need for Ubiquitous Broadband Deployment by Frank Bowe, Hofstra University. (Attachment 4)

technologies, including cell phones or any other handsets used for Internet-based voice communications;

- Require providers of IP-enabled communication services that provide voice communication to contribute to the Telecommunications Relay Services Fund to all;
- Require telecommunications service providers, as well as interconnected VoIP providers and manufacturers, to make their services and equipment accessible to and usable by people with disabilities and create new safeguards for Internet-based communications technologies (equipment, services and networks) to be accessible by people with disabilities;
- Promise a Commission to report to Congress within one year on the results of an inquiry on identifying formats and software needed to transmit, receive and display closed captioning and video programming provided via Internet-enabled services and digital wireless services, including ways to transmit televised emergency information that is accessible to people who are blind or visually impaired;
- Require devices used to receive or display video programming, including devices used to receive and display Internet-based video programming, to be accessible by people with disabilities so that such individuals are able to access all functions of such devices related to video programming. Include requirements for:
    - audio output where on-screen text menus are used to control video programming functions, and

- a conspicuous means of accessing closed captioning and video description, including a button on remote controls and first level access to these accessibility features when made available through on-screen menus.

H. Broadband unlocks cost-savings for consumers

In the not-too-distant future, the migration from analog phone service to broadband has enabled incredible secondary consumer benefits. Broadband-enabled VoIP competition allows consumers to do more than they ever did on the analog network, but also saves consumers billions annually. Broadband-enabled phone services around the world offer services known as High Definition (HD) or wideband voice service. These enhanced services often enable CD-quality sound, surround sound for conference calls, and even telepresence for better communication. These HD voice services are especially important for people with disabilities. Likewise, broadband phone services enable new mobility and features not possible in yesterday's analog network.

I. Smart broadband policy creates a "Virtuous Circle"

The communications future envisioned above does not value broadband as an ends unto itself, but a means to addressing some of the nation's grand challenges. By promoting both the supply of and the demand for broadband, the national broadband plan will help establish a "virtuous circle" in which an increased supply of robust and affordable broadband stimulates creation of applications that produce wide-ranging, valuable social benefits that then causes citizens to demand even more robust and affordable broadband;

which in turn stimulates greater investment in more robust broadband; which then stimulates the creation of even more beneficial applications that cause citizens to demand even more robust and affordable broadband. Strong federal leadership, expressed in a comprehensive plan, is crucial to ending the stand-off between those ready to invest in the deployment of robust broadband once great technologies and applications emerge to take advantage of it, and those ready to invest in transforming technologies and applications and who are waiting for robust broadband to be built out.

J. Affordable, High-Speed Fiber and Mobile Wireless Reach Everywhere

The national broadband plan should be forward-looking. DSL and cable modem technologies are simply not capable of satisfying the burgeoning demand of the applications we desire.[35] Wireless technologies will continue to lag behind wireline services,[36] and thus, cannot fully serve a community's needs.

The networks the plan inspires should have the capacity to deliver education and health care, they should serve public safety and homeland security, they should drive economic development and job creation, and they should be used to revitalize government and

[35] A study by the Office of Technology Policy within the Department of Commerce accurately predicted the inadequacy of these local broadband services over five years ago: "[T]he current generation of broadband technologies (cable and DSL) may prove woefully insufficient to carry many of the advanced applications driving future demand. Today's broadband will be tomorrow's traffic jam, and the need for speed will persist as new applications and services gobble up existing bandwidth." From Understanding Broadband Demand: A Review of Critical Issues, September 23, 2002, http://www.technology.gov/reports/TechPolicy/Broadband_020921.pdf.

[36] "Wireless broadband is expected to be economically deployed on a reasonably large scale—perhaps 20% of households—to offer the types of broadband services that DSL and cable modems offer now: that is, speeds in the range 1 Mb/s and relatively bursty traffic. Over the next 10 years, residential broadband will migrate to very-high-speed (VHS) broadband, with much higher data rates (24Mb/s and above) and much more continuous traffic, such as video. VHS [very high-speed]wireless broadband deployment will likely be limited to niche applications where landline broadband is expensive or not available, and for mobile applications." See Lawrence K. Vanston "Assessment of Wireless Broadband as a Competitor to Wireline Broadband," Technology Futures, Inc., http://www.tfi.com/pubs/r/r02006_awbcwb.html.

participatory democracy. To do all this, Benton and CCVM believe the National Broadband Plan should aim to deliver affordable broadband Internet service offered over fiber optic cable to every premise (home, business, government office, etc) in the country with an overlay of wireless broadband service.

Fiber to the premise (FTTP) is the optimal solution for providing broadband to new and existing communities alike. It offers more bandwidth and more flexibility than alternatives, at a similar price. Optical fiber can handle any bandwidth demand with ease.[37] It is the only technology that will deliver enough bandwidth, reliably and at a low cost, to meet the consumer demands of the next decade.[38]

K. Keeping the Internet Open and Free

To ensure innovation and citizens' speech rights online, the networks we build must be open. As the Commission has already found, consumers are entitled to: 1) "access the lawful Internet content of their choice"; 2) "run applications and use services of their choice, subject to the needs of law enforcement"; 3) "connect their choice of legal devices that do not harm the network"; and 4) "competition among network providers, application and service providers, and content providers."[39] President Barack Obama,

[37] One bundle of fiber cable not much thicker than a pencil can carry all of the world's current communications traffic.
[38] Ross, Steven S. Advantages of Optical Access. Broadband Properties. Volume 30, No. 3. April 2009.
[39] See Appropriate Framework for Broadband Access to the Internet over Wireline Facilities, CC Docket No. 02-33, Policy Statement, 20 FCC Rcd 14986 (2005) ("Internet Policy Statement").

too, has recently reiterated his firm commitment to keeping the Internet "open and free."[40]

The National Broadband Plan should recommend that Congress and the Administration should:

- Direct the Commission to adopt the Internet Policy Statement as firm rules and
- Require the Commission to include a nondiscrimination rule that prohibits Internet service providers from:
    - blocking, discriminating against or otherwise degrading lawful content, applications or services;
    - selling or offering any capacity to prioritize some Internet packets over others; and
    - charging additional fees to allow specific types of Internet content, applications or services used.

L. Consumer Protection is Ensured in the Digital Age

Digital consumers are also entitled to the protections expected in the analog world. Communications over broadband networks must be private and secure. Consumers deserve dependable service and reliable network outage reporting. Any network management should be disclosed. Consumers also deserve truth-in-billing: carrier's bill must: 1) be accompanied by a brief, clear, non-misleading, plain language description of the service or services rendered; 2) identify the service provider associated with each

[40] President Barack Obama's remarks on securing our nation's cyber infrastructure. May 29, 2009. http://www.whitehouse.gov/the_press_office/Remarks-by-the-President-on-Securing-Our-Nations-Cyber-Infrastructure/

charge; 3) clearly and conspicuously identify any change in service provider; 4) identify those charges for which failure to pay will not result in disconnection of service; and 5) provide a toll-free number for consumers to inquire or dispute any charges. Because of the importance of a broadband connection, carriers wishing to "discontinue, reduce, or impair" services must first request authority to do so from the Commission and must notify affected customers and others of their plans.

M. The Plan Must Address Evaluation and Metrics

The National Broadband Plan needs to include support for data collection and evaluation. In addition to mapping, metrics must be developed, and data collected, analyzed and made public that will allow us to determine to what extent the Plan has achieved the above goals. Such research, which must include field studies on the various sector applications and benefits identified above as well as national data that can be sufficiently disaggregated, will be important for feedback to determine whether midcourse corrections are needed or additional support is required for current initiatives, as well as to provide a better understanding of the contribution of broadband to the nation's economic growth and social equity.

II. Competition Alone is Not an Effective and Efficient Mechanism for Ensuring Access

The Commission seeks comment generally on how effective and efficient existing mechanisms have been, whether they are marketplace mechanisms, or activities of

governmental or non-governmental entities that supplement or complement the market mechanisms. The Commission asks what mechanisms currently exist at the federal, tribal, state, and local levels, whether implemented by broadband providers or by governmental or non-governmental entities.

A. Competition plays an important role in ensuring universal broadband

Consumers can benefit from competition when it spurs innovation, increases investment, broadens deployment, lowers costs, and increases choices. In promulgating the Telecommunications Act of 1996, Congress aimed both to introduce competition in the telecommunications marketplace and to preserve universal service. Competition helps the market continually to identify the most efficient suppliers, to provide appropriate incentives to suppliers and their competitors alike, to deliver services at minimum cost, and to continually reduce the costs and improve the quality of services. Competition is essential for putting consumers in control of their communication's future – and "[t]he FCC must see to it that both universal service and local competition are realized; one cannot be sacrificed in favor of the other."[41] Obviously, policies that promote competition must be part of the mix that ensures universal, affordable broadband services,[42] but a lack of voice competition in rural areas is a significant factor in the nation's drop in broadband penetration over the past five years.

[41] Alenco Communications, Inc. v. FCC, 201 F.3d 608, 615 (5th Cir. 2000).

[42] Three attachmentsdetail how competition is essential for putting consumers in control of their communication's future and how competitive policies can help ensure universal service: a) Regaining the Lead: Universal Service for a Globally Competitive America by Jorge Schement, Pennsylvania State University (Attachment 5), b) Universal access in the information economy: Tracking policy innovations abroad by Krishna Jayakar and Harmeet Sawhney, Pennsylvania State University and Indiana University (Attachment 6), and c) "From all my teachers I have grown wise, and from my students more than anyone else:" What Lessons can the U.S. learn from Broadband Policies in Europe? by Amit M. Schejter, Pennsylvania State University (Attachment 7).

The most recent data from the U.S. Census Bureau confirms wide gaps in Internet and broadband usage.[43] Five states see household Internet penetration rates of 75 percent or more while 7 states have penetration rates below 60 percent. Internet usage also varied by education. For individuals 25 and older with a bachelor's degree, 87 percent reported going online from any location in 2007. For those with only some college, 74 percent reported using the Internet. About half (49 percent) of those with only a high school diploma reported using the Internet, compared with 19 percent for those without a high school diploma. Internet usage also varied by race; 69 percent of whites lived in households with Internet use, while the same was true for 51 percent of blacks, 73 percent of Asians and 48 percent of Hispanics. The National Broadband Plan must address these disparities.

B. The Universal Service Fund Can be used to Extend Broadband's Reach

The Telecommunications Act of 1996 expanded the definition of universal service to include schools, libraries, and rural health care facilities, and access to "advanced services." The goal was to provide opportunities for students and community residents to take advantage of these "advanced services" even if they were not yet available in their homes, i.e. to help to bridge what became called the "digital divide." Access to the Internet was a high priority:

> Elementary and secondary schools and classrooms, health care providers, and libraries should have access to advanced telecommunications services …. All telecommunications carriers serving a geographic area shall

[43] Computer and Internet Use in the United States: October 2007. U.S. Census Bureau, Population Division, Education & Social Stratification Branch. June 3, 2009. (http://www.census.gov/population/www/socdemo/computer/2007.html)

> provide such services to elementary schools, secondary schools, and libraries for educational purposes at rates less than the amounts charged for similar services to other parties. [44]

1. The E-Rate is a model

The E-Rate has been an enormous success in improving broadband access for libraries and schools.[45] Nancy Kranich[46] finds that thanks to the USF's E-Rate program and other investments, libraries are now the number one point of access for the public outside the home, school, and work, leveling the playing field for those left behind in the digital age. But the success of the E-Rate program goes well beyond Internet access – it now is helping provide a communication outlet of last resort in a crisis. Both 9/11 and Katrina demonstrated the power of public access broadband in libraries for providing alternative communication channels. Continuing the success of the E-Rate and expanding the goals of universal service to broadband could similarly have broad and unmistakable impacts well beyond just increasing Internet access rates.

Heather E. Hudson[47] explains how the Telecommunications Act of 1996 took an important first step in linking universal service and broadband access. The 1996 Act created the E-Rate program as part of the universal service fund to make broadband universally available in every school, classroom, and library in America.

[44] Telecommunications Act of 1996, Public Law No. 104-104, 110 Stat. 56 (1996).
[45] See Appendix A for analysis of E-rate allocations.
[46] Libraries as Universal Service Providers by Nancy Kranich, KS Consultants and Fomer President, American Library Association. (Attachment 9)
[47] The Future of Universal Service Fund Support for Organizations: Schools, Libraries and Rural Health Care Providers by Heather E. Hudson, Professor and Director, Communications Technology Management Program, University of San Francisco. (Attachment 8)

While not flawless, the Universal Service Fund (USF) programs for schools, libraries and rural health care have helped numerous students in enabling them to use the Internet and other electronic services for education, community residents in providing access to the Internet in libraries, and patients dependent on rural health care services.

USF programs should be seen as a complement to the Broadband Stimulus package and other federal programs promoting information and communication technologies (ICTs) including health care, energy, education, national security, veterans' services, etc., and an important component of a national broadband policy.

i. Recommendations for Improving the E-Rate

a. Continuation of the E-Rate Program

As shown in the Appendix, there is significant evidence that the funds have contributed to providing access to the Internet for students, particularly in public schools, and for community residents through public libraries. Therefore, the program should be continued. The E-Rate should be considered an important element of a national broadband policy because it provides broadband access to students and community residents, helps to reach low income and rural populations, and has provided an incentive in some rural and remote areas to extend broadband access to previously unserved communities.

b. Keep the E-Rate Program under the FCC, but add Expert Advisors

Because of its direct role as a key component of universal service policy, the E-Rate should remain independent of other government departments and under the administration of the Commission. But should an educational and community access program be run by an agency comprised primarily of lawyers and economists? Not without other input. Other types of expertise are needed. The Commission should consider augmenting oversight to include an inter-agency Advisory Committee which includes representatives from other federal agencies including National Telecommunications and Information Administration, the Department of Education, and Health and Human Services, which is already involved in the Rural Health Care initiatives. There should also be participation of experts to advise on research and evaluation of ICT applications, and possibly of federal research bodies such as the National Academy of Sciences and National Science Foundation. These research experts should be responsible for guiding evaluation research on the utilization and impact of E-Rate funding.

c. Key Elements of the E-Rate

The E-Rate funds allocation process has several unique features that should be retained:

- **Institutional access:** The programs extend the definition of universal service to access – for individuals and students by subsidizing connectivity for libraries and schools, and for users of rural health care through subsidies for rural health care facilities.

- **Targeted subsidies:** Subsidies are highest for schools and libraries serving low income populations and in high cost rural areas
- **Awards to the user:** The E-Rate funds are awarded to the user (school or library) rather than directly to the carrier or vendor. This approach can empower the schools and libraries as customers of the carriers, rather than supplicants. In some cases, schools and libraries have become "anchor tenants" for these carriers, encouraging them to bring broadband into previously unserved communities. [48]
- **Competitive bids:** The E-Rate process requires competitive bids for approved services through the USAC website. This approach not only creates incentives to minimize costs, but also encourages new entrants in addition to incumbents and large vendors to provide equipment and services for schools. [49]

d. Possible Changes to the Funding Formula:

Congress and the Commission should expand the E-Rate program. However, given today's limited support for schools and libraries, it could be argued that funding should be available only to schools and libraries that are clearly disadvantaged, e.g. eligible for discounts of 60 percent (or possibly 70 percent) or more. Allocations to other applicants could be gradually phased out. Alternatively, the discount percentages could be reviewed and possibly decreased to provide greater incentives for highly subsidized schools and libraries to find additional sources of funding, or to be prudent and efficient in their utilization of ICT facilities and services.

[48] See Hudson, Heather E. *From Rural Village to Global Village: Telecommunications for Development in the Information Age*. New York: Routledge, 2006.
[49] See Hudson, Heather E. "Universal Access: What have we learned from the E-Rate?" *Telecommunications Policy*, vol. 28, issues 3-4, April-May 2004, pp. 309-321.

A small amount of funds should also be allocated for outreach, to ensure that all eligible recipients are aware of the program, and to provide training and support to help them with the funding process.

e. Support for Connectivity

Benton and others advocate expanding E-Rate funding beyond connectivity to support training, technical support, and content. But if the current pressures on the funding base and ongoing requirements for connectivity subsidies continue, E-Rate funds should be limited to supporting connectivity, while other sources (such as BTOP and other NTIA programs, DOE, state and local programs) should be tapped for these additional important needs.

f. Management and Metrics:

Problems of slow and cumbersome processes to allocate funds have continued to plague the Universal Services Administrative Company (USAC), the organization established to manage distribution of USF funds. In May 2007, USAC projected that $650 million allocated for schools and libraries from funding years 2001 to 2004 had not been spent. The Commission authorized these funds to be carried over to the next funding year to increase disbursements for schools and libraries.[50] This amount represents 26 percent of the funds available ($2.25 billion annually) during the four year period.

The E-Rate Program has been accused of insufficient oversight. Some school districts have purchased equipment that was unnecessary, too costly or beyond their capability to

[50] FCC Public Notice DA07-2470, released June 11, 2007

manage. Equipment vendors have been accused of fraud and price-rigging.[51] In 2003, USAC, with support from the Commission, convened a task force to recommend steps to strengthen and improve E-Rate compliance procedures and protections from waste, fraud and abuse.[52] In December, 2003, the House Committee on Energy and Commerce requested the Government Accountability Office (GAO) to prepare a report on the FCC's management and oversight of the E-Rate Program. The GAO found evidence of some mismanagement of E-Rate funds, bureaucratic delays in disbursing funds, and some waste of E-Rate resources. Its report called for the FCC to strengthen its management and oversight by determining comprehensively which federal accountability requirements apply to the E-Rate, establishing E-Rate performance goals and measures, and taking steps to reduce beneficiary appeals.[53] In March 2005, the House Committee held hearings on the GAO report.[54]

USAC and the Commission have taken significant steps to rectify these problems. They are also being addressed through the Notice of Proposed Rulemaking (NPRM) on USF management, administration and oversight.[55]

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[51] *See, for example, Dotinga, Randy. "Fraud charges cloud plan for 'wired' classrooms" The* Christian Science Monitor, *June 17, 2004.*

[52] Recommendations of the Task Force on Prevention of Waste, Fraud and Abuse, September 2003.

[53] United States Government Accountability Office (GAO). "Telecommunications: Greater Involvement Needed by FCC in the Management and Oversight of the E-Rate Program. Report to the Chairman, Committee on Energy and Commerce, House of Representatives, February 2005.

[54] "Problems with The E-Rate Program: GAO Review Of FCC Management And Oversight." Hearing Before The Subcommittee On Oversight And Investigations Of The Committee On Energy And Commerce, House Of Representatives, March 16, 2005

[55] Federal Communications Commission, Notice of Proposed Rulemaking: "Comprehensive Review of Universal Service Fund Management, Administration, and Oversight." WC Docket No. 05-195, released July 20, 2005.

g. Evaluation and Program Review

Better data would have been useful to assess the efficiency and effectiveness of the E-Rate program after more than a decade and nearly $22 million in disbursements. Specific metrics, evaluation research, publication of data and findings, and support for these activities must be required from now on.

For example, the Commission should require to be collected and made publicly available data on expenditures and usage of USF programs disaggregated by location (zip code), SMSA, eligibility for income subsidy programs, other data such as ethnicity, gender and age cohort to the extent that such information can be collected in a manner that preserves privacy and anonymity.

Research studies should be supported from the funds to carry out rigorous field studies as well as project case studies to document how funds were used, social and economic impacts, and lessons learned for future funding and policy review.

A triennial review of Commission and USAC administrative, application and oversight procedures should be required to improve efficiency, effectiveness and transparency of funds disbursement, and to examine changing needs for ICT access.

2. Rural Health Care

Section 254 of the Telecommunications Act of 1996 sought to provide rural health care providers “an affordable rate for the services necessary for telemedicine and the instruction relating to such services.” Specifically, Congress directed telecommunications

carriers "to provide telecommunications services which are necessary to health care provision in a State, including instruction relating to such services, to any public or nonprofit health care provider that serves persons who reside in rural areas of that State, at rates that are reasonably comparable to rates charged for similar services in urban areas of that State."[56] The Rural Health Care Division of USAC administers a program that provides up to $400 million annually so that rural health care providers pay no more than their urban counterparts pay for the same or similar telecommunication services.

By 2003, only 1194 of 8300 potential applicants had received support, and the fund disbursed only $30.25 million in first five years out of a potentially available $200 million. Therefore, the FCC implemented several changes to eligibility requirements and comparative pricing guidelines designed to make the USF discount more widely available and simpler to implement.[57] Despite these modifications, the program continued to be underutilized; the Commission notes: "…in each of the past 10 years, the program generally has disbursed less than 10 percent of the authorized funds." [58]

The Commission then authorized a two-year pilot program in September 2006 for construction of dedicated broadband networks to connect health providers in a state or region, and to support the cost of connecting these networks to Internet2. The pilot program was also to provide information to guide revision of the current RHC rules; it

[56] Public Law 104-104, the Telecommunications Act of 1996. See 47 U.S.C. (h)(2)(A)
[57] Federal Communications Commission, Report and Order, Order on Reconsideration, and Notice of Proposed Rulemaking in the Matter of Rural Health Care Support Mechanism, November 13, 2003.
[58] Federal Communications Commission. "In the Matter of Rural Health Care Support Mechanism," WC Docket No. 02-60, adopted September 26, 2006, p. 3.

was also to contribute to increasing broadband connectivity for many purposes: "If successful, increasing broadband connectivity among health care providers at the national, state and local levels would also provide vital links for disaster preparedness and emergency response and would likely facilitate the President's goal of implementing electronic medical records nationwide."[59] In November 2007, the Commission announced allocation of more than $417 million for construction of 69 statewide or regional broadband telehealth networks in 42 states and 3 US territories under the Health Care Pilot Program.[60]

i. Effectiveness and Efficiency

Although the percentage of available rural health care funds awarded was low, the explanation was not clear. First, it appeared from personal discussions with officials involved in the start-up phase of the Rural Health Program that little evidence was available to indicate what level of funding might be appropriate. Therefore, an estimate of $400 million per year may have been too high, especially given the parameters established for the program. Also, as noted above, the guidelines and procedures were complex and in many cases did not provide sufficient incentive to participate.

According to USAC data, a total of $168.5 million was disbursed for Rural Health Care from 1998 to 2005 inclusive.[61] Some $97.4 million or 58 percent of the funds during that period went to Alaska, primarily to link village clinics to regional hospitals, and to link

[59] Federal Communications Commission. "In the Matter of Rural Health Care Support Mechanism," WC Docket No. 02-60, adopted September 26, 2006, pp. 1-2.
[60] "FCC Launches Initiative To Increase Access To Health Care In Rural America Through Broadband Telehealth Services." November 19, 2007. See www.fcc.gov/cgb/rural/rhcp.html.
[61] Analysis of annual commitment data provided at http://www.rhc.universalservice.org/funding/asc/

the hospitals to medical centers in Anchorage, under the AFHCAN (Alaska Federal Health Care Access Network) initiative. AFHCAN is now apparently the world's largest telemedicine network, with more than 270 sites. Thus universal service fund support to AFHCAN alone made a significantly effective contribution to health care delivery in remote areas. [62]

ii. Recommendations for Health Care Programs

a. Continuation of the Rural Health Care (RHC) Program

Should a program that has disbursed less than 10 percent of its authorized funds since 1998 be continued? The answer is not as simple as it would appear. First, the amount of $400 million per year was a very rough estimate without much foundation. Second, there has been very limited publicity about the program. Third, its application procedures have been very complex, and until recently, the discount for high speed connectivity in many rural areas was minimal. The evidence for rural health care is limited primarily to Alaska, where the funds have been key to upgrading communications between hospitals and village clinics, but the revised health care initiative should be given a chance to deliver.

The Commission has now changed the formulas for calculating the discounts, and included discounts for Internet access. It has also now announced a two-year pilot program to support investment in broadband infrastructure to link health providers and to provide guidance for the future of the program. This program should be seen as a pilot project and test bed to determine whether investment in broadband to support the health

[62] See Hudson, Heather E. "Rural Telemedicine: Lessons from Alaska for Developing Regions." *Telemedicine and e-Health*. August 2005, Vol. 11, No. 4: 460-467.

care sector can contribute in general to extending broadband infrastructure and increasing community and institutional access.

The RHC should be allowed to continue at least through the next two years, with the following additional criteria.

b. Evaluation

This initiative merits careful evaluation to determine whether it contributes to both health care and infrastructure access goals. Therefore, funding should be built into the Rural Health Pilot Program so that we can learn if, or under what circumstances, these grants have contributed to significant improvement in efficiency and effectiveness of rural health care delivery.

- Efficiency should include metrics such as: reduction in time to diagnose problems; increase in patients treated at nearest clinic or hospital without need for travel to larger medical center; increase in patients able to rehabilitate at home rather than in a hospital or other care center; improvement in logistics of rural health care operations, etc.
- Effectiveness should include improvements in quality of care including timely diagnosis of medical problems; participation of specialists or other caregivers not available locally; improvement in initial diagnosis and correction of misdiagnoses; improvement in successful treatment and outcome of patient

illnesses and injuries, particularly those most prevalent and/or most critical in rural areas.[63]

c. Coordination with Health IT Initiatives

Rural Health Care Program support should be coordinated with other Health IT initiatives such as those authorized under the Stimulus Program and in other federal programs and agencies such as Health and Human Services, the Veterans Administration, and the Public Health Service. Health care connectivity support should be extended to non-rural providers, with priority given to potentially high impact applications and low income or other disadvantaged populations.[64]

d. Funding infrastructure:

The RHC pilot program includes funding for broadband infrastructure. In addition to linking health facilities, these networks, as the Commission points out, could also provide vital links for disaster preparedness and emergency response and facilitate the goal of implementing electronic medical records nationwide. There is some evidence (for example, in rural Alaska) that extension of broadband networks to connect schools and libraries has also brought broadband to neighborhoods and rural communities that previously lacked access. The FCC should commission studies to determine to what extent E-Rate funding has contributed to extending infrastructure, and should build funds for such research into the new RHC pilot program.

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[63] A pioneering approach to the evaluation of impact of reliable telecommunications on rural health care was Hudson, Heather E. and Edwin B. Parker…"Medical Communication in Alaska by Satellite." *New England Journal of Medicine*, December 20, 1973.

[64] The VA and Public Health Service were major participants in early federally supported telemedicine satellite experiments (such as ATS-1, ATS-6, and CTS, etc.) See Hudson and Parker, *supra*, re ATS-1 telemedicine experiments.

3. Low Income Programs

i. Lifeline

As mobile services expand and pricing of wireline increases, more households, including low income households, rely on mobile phones as their only phones. As in the developing world, the availability of prepaid services has made telephone service accessible for residents with low incomes and/or lacking bank accounts and credit cards. However, the pricing of prepaid can be expensive compared to low-tiered options available on post-paid plans.

Also, as noted in the NOI and the Commission's recent Rural Broadband Report,[65] broadband is becoming increasingly important for access to social and government services, for education and training, and for commerce.

ii. Recommendations for Lifeline

We therefore propose two fundamental changes to the Lifeline program.

a. Conversion to a user-based subsidy with vouchers redeemable for any voice service.

For voice services, mobile should be included in services eligible for low income support. The subsidy should be in the form of a voucher for a maximum monthly amount that could be used with any wireline or wireless (or satellite in unserved remote areas) provider. The model for this voucher could be the Digital TV discount voucher that was provided to enable individuals to obtain a discount on DTV converter boxes.

[65] Copps, Michael J. Bringing *Broadband To Rural America: Report On A Rural Broadband Strategy*. Washington, DC: Federal Communications Commission, May 22, 2009.

b. Expansion of lifeline to include broadband, also with user-based subsidies and a voucher system.

A user-based subsidy should also be provided for low income households to obtain broadband connectivity. Again, the model could be the DTV discount card. A voucher could be provided to certified customers to reduce the price of broadband modems and to obtain a discount on monthly internet charges. Again, the voucher should be usable with any broadband provider: wireline, cable, satellite, fixed wireless, mobile wireless, etc. Barriers to broadband utilization include computer ownership and skills in using computers or other devices to access online information and services. Ideally, then, provision of this discount should be coupled with other programs that help low income households obtain personal computers.

A broadband voucher program could be introduced on a phased or pilot basis (as was the Rural Health Program) targeting low income communities or populations where other initiatives (such as some of those likely to be supported by the BTOP program) will offer community access and training and affordable computers through lease-to-own schemes or discounted or free equipment such as through public/private partnerships (donations from vendors, recycling and refurbishment of used equipment, etc.)

Income criteria for voice and broadband discounts should be required, such as eligibility for welfare or food stamps.

III. The National Broadband Plan Must be Consistent with Existing Law

The Commission seeks comment on how the National Broadband Plan should account for the variety of existing statutory provisions that touch on broadband, and how the Communications Act and other relevant statutory provisions should inform the development of a National Broadband Plan..

The National Broadband Plan must be consistent with related statutory directives. The plan must:

- aim to preserve the vibrant and competitive free market that presently exists for the Internet;[66]
- promote the continued development of the Internet;[67]
- encourage the deployment on a reasonable and timely basis of advanced telecommunications capability – broadband – to all Americans;[68] and
- recommend immediate action to accelerate broadband deployment where the Commission finds advanced telecommunications capability is not being deployed to all Americans in a reasonable or timely manner.[69]

U.S. communications law is historically rooted in universal service and the National Broadband Plan must be as well.[70] Universal service is a time honored national priority

[66] 47 U.S.C. § 230(b)(2).
[67] 47 U.S.C. § 230(b)(1).
[68] 47 U.S.C. § 157 nt (incorporating section 706 of the Telecommunications Act of 1996, Pub. L. No. 104-104, 110 Stat. 56 (1996)).
[69] 47 U.S.C. § 157 nt (b).
[70] The Recovery Act explicitly says that the National Broadband Plan "shall seek to ensure that all people of the United States have access to broadband capability."

enshrined in the Communications Act of 1934 and confirmed in the Telecommunications Act of 1996. In identifying the purposes of the Acts, Congress wrote:

> "For the purpose of regulating interstate and foreign commerce in communication by wire and radio so as to make available, so far as possible, *to all the people of the United States*, without discrimination on the basis of race, color, religion, national origin, or sex, a rapid, efficient, Nation-wide, and world-wide wire and radio communication service with *adequate facilities at reasonable charges*, for the purpose of the national defense, for the purpose of promoting safety of life and property through the use of wire and radio communication..."[71]

The nearly 70-year commitment Congress and this nation have had to universal service has been indispensable in providing the same opportunities for rural and low income Americans to participate in the nation's economy.[72]

The National Broadband Plan must also be consistent with the goal of the Telecommunications Act of 1996 which was enacted to "promote competition and reduce regulation in order to secure lower prices and higher quality services for American Telecom consumers and encourage rapid deployment of new telecommunications technologies."[73]

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[71] 47 U.S.C. 151 (emphasis added)

[72] Universal service programs have helped deliver essential communications services to rural areas, the poor, schools, libraries, and rural health care clinics. It has made the telephone an ubiquitous communications tool in the U.S. and enhanced the value of the public network to all users. This unparalleled level of communication has helped to foster economic productivity and increase our quality of life in immeasurable ways. The vital importance of this program is clear to anyone who has ever lived rural in America or struggled to make ends meet. Just as rural electrification in the 1930s led to a surge of economic growth and raised living standards across rural America, universal, affordable broadband service can play the same role in the Internet era.

[73] Telecommunications Act of 1996 (title). Also see Sec 706 which defines "advanced telecommunications capability" as "high-speed, switched, broadband telecommunications capability that enables users to originate and receive high-quality voice, data, graphics, and video telecommunications using any technology." (See 47 U.S.C. 157 nt)

The National Broadband Plan must support the availability and affordability of broadband communications to consumers in all areas. Section 254(b)[74] directs the Commission to base policies for the preservation and advancement of universal service on, among other principles:

> (1)QUALITY AND RATES- Quality services should be available at just, reasonable, and affordable rates.
> (2)ACCESS TO ADVANCED SERVICES-Access to advanced telecommunications and information services should be provided in all regions of the Nation.
> (3)ACCESS IN RURAL AND HIGH COST AREAS-Consumers in all regions of the Nation, including low-income consumers and those in rural, insular, and high cost areas, should have access to telecommunications and information services, including interexchange services and advanced telecommunications and information services, that are reasonably comparable to those services provided in urban areas and that are available at rates that are reasonably comparable to rates charged for similar services in urban areas.

The National Broadband Plan should also address the five purposes Congress included in the Recovery Act:

1. provide access to broadband service to consumers residing in unserved areas of the United States;
2. provide improved access to broadband service to consumers residing in underserved areas of the United States;
3. provide broadband education, awareness, training, access, equipment, and support to –

(A) schools, libraries, medical and healthcare providers, community colleges, and other institutions of higher education, and other community support

[74] 47 U.S.C. 254

organizations and entities to facilitate greater use of broadband service by or through these organizations;

(B) organizations and agencies that provide outreach, access, equipment, and support services to facilitate greater use of broadband service by low-income, unemployed, aged, and otherwise vulnerable populations; and

(C) job-creating strategic facilities located within a State-designated economic zone, Economic Development District designated by the Department of Commerce, Renewal Community or Empowerment Zone designated by the Department of Housing and Urban Development, or Enterprise Community designated by the Department of Agriculture;

4. improve access to, and use, of broadband service by public safety agencies; and
5. stimulate the demand for broadband, economic growth, and job creation.

IV. Conclusion

For the above stated reasons, the Commission should craft a National Broadband Plan that envisions a communications future that fulfills the promise of our historic commitment to universal, affordable wireline and wireless service. The plan should include an articulation of where we as a nation want to go and the intermediate steps for getting there.

Respectfully submitted,

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Appendix A
E-Rate Allocations

Nearly $22 billion have been allocated since funds were first disbursed in 1998. Of the total funds disbursed through 1997 for the E-Rate, more than 86 percent (probably more than 90 percent because of additional funding to school/library consortia) went to schools. Libraries received 2.9 percent, and consortia of schools and libraries received 11.4 percent. See Table 1.[75]

Table 1:

Universal Service Fund: Allocations for Schools and Libraries: 1998-2007

Applicant Type	$ amount 1998-2007	% of $ Total
Schools/ School Districts	18,146,404,271	85.73%
Libraries	610,140,020	2.88%
School/Library consortium	2,410,533,002	11.39%
Total	**$21,167,077,293**	100.00%

Source: Derived from data available at www.universalservice.org

A high percentage of public schools has received support from the fund. Supported public schools are in all geographic categories from large cities to rural areas. Data obtained by the GAO from USAC show that 82 percent of states and other entities had a participation rate of greater than 75 percent of their public schools or school districts in the E-Rate Program.[76] In terms of geographic distribution, more than 80 percent of the participating

[75] The tables below are reproduced from Hudson, Heather E. "The Future of the E-Rate: U.S. Universal Service Fund Support for Public Access and Social Services" in Schecter, Amit., ed., … *and Communications for All: An Agenda for a New Administration*, Lexington Books, 2009.

[76] These include the 50 states plus DC, American Samoa, Guam, Northern Marianas,, Puerto Rico, and US Virgin Islands. Nineteen of these had a participation rate of 90 or higher; a further 19 had a participation rate between 80 and 89.9 of public schools. Government Accountability Office. Telecommunications: Long Term Strategic Vision Would Help Ensure Targeting of E-Rate Funds to Highest-Priority Uses." Washington, DC, March 2009.

entities in all geographic categories participated (ranging from large cities to rural areas), with 86 percent or more in rural areas, and 81.3 percent in large cities.[77]

Further, schools serving low income residents are well represented. GAO data show that the mean percentage of students eligible for free and reduced price lunches in participating school entities was 44.9 percent compared to 36.1 percent in non-participating schools.[78] From 1998 to 2006, 34.5 percent went to schools and libraries eligible for a 90 percent discount, while 62.9 percent went to those eligible for discounts of 80 percent or more, and 77.1 percent to those eligible for discounts of 70 percent or more. In 2007, 28.4 percent went to those eligible for a 90% discount, 55.0 percent to those eligible for discounts of 80 percent or more, and 73.6 percent for those eligible for discounts of 70 percent or more. See Table 2. Thus, it appears that funds were disbursed primarily to schools in disadvantaged regions – in rural/remote or low income urban areas. (USAC does not break down most allocations by rural vs. urban location, apparently because funds are often granted to large jurisdictions, although they must provide the data in order to qualify for a discount rate.)

Table 2: Amount allocated by Discount Bands: 1998-2006

Discount Band	Percent of Funds by Discount Band 1998-2006	Percent of Funds by Discount Band 2007
20-29%	0.13%	0.13%
30-39%	0.38%	0.44%
40-49%	5.99%	6.52%
50-59%	6.53%	7.23%
60-69%	9.86%	12.09%
70-79%	14.22%	18.56%
80-89%	28.42%	26.63%
>90%	34.48%	28.40%
Total 60% - >90%	86.98%	85.68%

Source: Derived from data available at www.universalservice.org

[77] Data derived from "FCC E-Rate: An E-Supplement to GAO-09-253" in Government Accountability Office. Telecommunications: Long Term Strategic Vision Would Help Ensure Targeting of E-Rate Funds to Highest-Priority Uses." Washington, DC, March 2009.
[78] Ibid.

In terms of reaching disadvantaged students, at the state level, for the period 1998-2006, four of the 10 poorest states (measured in GSP/capita) were among the biggest E-Rate recipients per capita: Mississippi, Oklahoma, South Carolina, and Kentucky. The biggest beneficiaries were Alaska and the District of Columbia, which received $201 and $200 per capita, respectively. Other states that have received more than $100 per capita to date include New Mexico and New York. See Table 3.

Table 3:

Top 10 States in E-Rate Funding per Capita 1998-2006

Alaska	$201
District of Columbia	$200
New Mexico	$176
New York	$138
Mississippi	$109
Oklahoma	$100
South Carolina	$95
Louisiana	$87
Texas	$86
Arizona	$76
Kentucky	$76

(**Bold** indicates states among poorest 10 states in GSP/capita.(Bureau of Economic Analysis, 2008)

Source: Derived from data available at www.universalservice.org

In some cases, availability of E-Rate funding has provided incentives for carriers to extend services to rural communities previously without broadband facilities. The schools and libraries have acted as “anchor tenants”, i.e. customers with significant demand and ability to pay, that have justified investment in facilities. For example, in Alaska, schools in some 200 villages now have broadband connectivity (primarily by satellite). The schools and their associated libraries provide community access; carriers are also extending services in many small communities to small businesses and individual households.